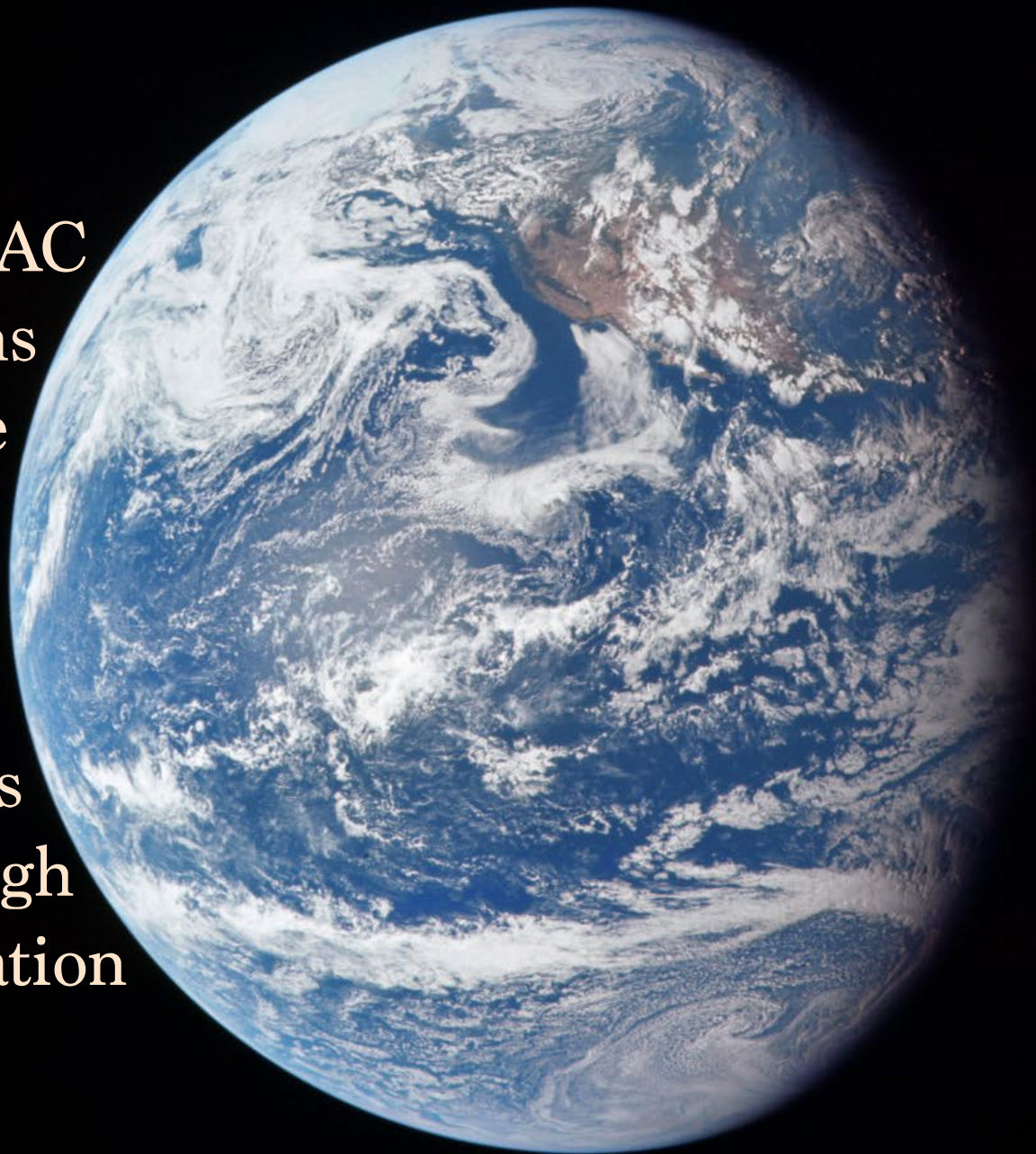


COLLEGES &
UNIVERSITIES OF
THE ANGLICAN
COMMUNION



CLIMATE ACTION REPORTS

How CUAC
institutions
are
responding
to the
climate
crisis
through
education



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Convenor, CUAC Climate Crisis Working Party

Visiting Reader in Sustainability and Education

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Principal, Madras Christian College, Chennai, India

These reports were organized by the CUAC Climate Crisis Working Group which was formed in response to CUAC's Online Seminar V: COP26, Climate Change and Christian Universities (Nov 2021) and were presented at the 2023 CUAC Triennial Conference at Trinity College & Janet Clarke Hall in Melbourne, Australia on July 5th.

Climate Crisis Working Group Members

Stephan Scoffham, *Convenor*, Visiting Reader, Canterbury Christ Church University, UK

Joy Carter, formerly Vice Chancellor of University of Winchester, UK

Sherrie David, Head, Department of Plant Biology, Women's Christian College, Chennai, UK

Tamara Hunt, *Editor*, Sustainability Manager at the University of Chester, UK

Jeremy T. Law, Dean of Chapel, Canterbury Christ Church University, UK

Jan Makisado, Rikkyo University, Tokyo, Japan

Mao Minoura, Vice-Pres. and Head of Service Learning Centre, Rikkyo Univ., JAPAN

Elizabeth Perry, Advocacy and Communication Manager, Anglican Alliance, UK

Andrew Thompson, School of Theology, University of the South, Sewanee, TN USA

Paul Wilson, Principal, Madras Christian University, Chennai, India

Michael Wallace, Chaplain, Selwyn College, Dunedin, New Zealand

Paul Jayakar, American College, Madurai, India

Jamie Callaway, General Secretary of CUAC, New York, USA

Julia DeLashmutt, Administrator of CUAC, New York, USA

Choosing Life and Protecting Creation

Climate change affects us all but especially young people who have their lives ahead of them. It raises profound questions about the relationship between people and nature and our ideas about education.

The science of climate change has evolved gradually over many decades. The discovery of the greenhouse effect in the nineteenth century was of little more than academic interest at the time. However, it became more significant from 1930s onwards as trends in global warming began to be identified. More recently, the huge expansion in global economic activity (the 'Great Acceleration') has led to dramatic increases in atmospheric pollution. Now with the publication of reports from the IPCC (Intergovernmental Panel on Climate Change), the work of the Stockholm Resilience Centre and studies by hundreds of other scientists it has become clear that global warming is a serious threat to life on Earth. We also know beyond all reasonable doubt that human activity is the main cause of the unprecedented weather events occurring across many parts of the world. These 'foreshocks' herald potentially devastating events to come in the years ahead as levels of atmospheric carbon dioxide continue to rise.

Climate change is a complex phenomenon with multiple social, cultural, political and ethical dimensions. The fact that there is no direct link between cause and effect adds another level of difficulty. Pollution that was emitted in the past can linger in the atmosphere for many decades affecting people elsewhere in the world far into the future. The poor and disadvantaged are particularly vulnerable because they do not have the capacity to cope with significant disruption. This raises questions about power relations, intergenerational justice and the responsibilities that one group of people have to another. Our current institutions are singularly badly placed to deal with such issues. In these circumstances, socially constructed silence is a much more convenient response.

Climate change also challenges us individually. It is such a pervasive and bewildering problem that it is easy to feel powerless or overwhelmed. Anxiety, frustration, guilt, grief, denial, and wilful ignorance are some of the other common responses. It is easy to overlook the emotional impact of climate change and the emotional grit that is needed to live with the consequences. Evolution has equipped us to deal with immediate and tangible threats but has left us vulnerable to dangers that are delayed and distributed.

There are those who believe it is possible to 'fix' climate change and that technology will somehow come to our rescue. Whilst technology certainly has a part to play as we search for solutions, framing climate change in purely scientific terms smacks of hubris and fails to take account of the beliefs and values which underpin our behaviours. Indeed, climate change may be a symptom that reflects other issues rather than the ultimate threat itself. How we think about ourselves, our ideas about what matters and our relationship with the natural world are even more fundamental. Recognising that the Earth is a living, dynamic and self-regulating system,

Exploring the spiritual and moral implications of climate change will deepen young people's understanding still further and guide them in making wise choices. Given their mission to develop active and responsible citizens, CUAC institutions are particularly well placed to perform this task.

rather than as a patient to be cured, shifts attention away from anthropomorphic interventions towards balance and harmony.

Education has a vital role to play in this complicated, contradictory and contested terrain. Higher Education institutions have the opportunity to take a leadership role in developing new thinking about climate change which is well informed, critical and imaginative. We can harness young people's idealism and their hopes for the future whilst also helping them to build their resilience to cope with disasters. Exploring the spiritual and moral implications of climate change will deepen their understanding still further and guide them in making wise choices. Given their mission to develop active and responsible citizens, CUAC institutions are particularly well placed to perform this task.

This report contains a range of case studies which shed a fascinating light on different actions which are being taken by CUAC institutions around the world in response to the climate crisis. Many of the reports focus on campus-based activities – themes such as recycling and waste figure prominently. Practical action is highlighted but academic discussions and seminars on social justice form another important strand. There is encouraging evidence that a significant number of staff and students have been involved in different ways to mitigate climate change at a local level. There are also patterns with respect to regional differences. In very general terms, the reports from the US and UK tend to focus on carbon reduction measures, whereas the reports from the Global South show a much greater concern for the natural world and the importance of living within ecological limits.

There is no single approach which can be recommended in preference to another. Climate change education can be viewed as:

- a discrete subject in its own right
- a dimension of all disciplines,
- an opportunity to improve estate management,
- a rallying point for action or
- an institutional focus

It often combines these different elements in various proportions. What is to be hoped is that the examples presented here will offer ideas and spur further activities across CUAC and beyond.

In recent years there have been repeated calls for a paradigm shift in education to bring it into line with current needs and priorities. The student activist, Greta Thunberg, has summed this up in the notion of 'cathedral thinking'. If we are to construct new edifices, we need to see that they are based on firm foundations. It is almost certain that the leaders of tomorrow are enrolled in colleges and universities around the world today. We have the chance to shape their ideas and influence the future. CUAC and other HE institutions can play their part in 'choosing life' as urged by the Archbishop of Canterbury and other church leaders in their 2019 Joint Statement on protecting creation.

Stephen Scoffham

*Convenor, CUAC Climate Crisis Working Party
Visiting Reader in Sustainability and Education
Canterbury Christ Church University, UK*

Recent Book:

Sustainability Education: A Classroom Guide





Since 1881

The American College
Madurai – 625 002
Tamil Nadu, India

GREEN CULTURE

Green Culture inculcates in our young men and women the consciousness to live sustainably. As part of such consciousness, our students involve themselves in **Green Management, Solid Waste Management, and Village Ecology**.

The American College, a higher educational institution, is known for its academic excellence and social relevance. The college was established in 1881 in Madurai, Tamil Nadu, India. With its extreme sensitivity to national policies and community needs, the college has grown from strength to strength. Presently, the college offers a good number of arts and science courses and twelve thousand students are studying at the American college now. It may be worth mentioning that Green culture programmes have been institutionalised in the curriculum. Freshmen join one of such programmes and complete the experiential course in two years.

Green Management aims to provide an insight into environment and its impact on human life. It also enables students to nurture a much-needed concern over the rising climate change and carbon emission which would eventually be detrimental to individual and collective wellbeing. They would also lay foundation to active participation of individuals in prudent and rationale use of natural resources. Students of **Solid Waste Management** maintain vermicompost unit on campus. Vermicompost is a product of the decomposition process using various species of earth worms and leaves waste collected from our college. In **Village Ecology** students learn the interrelationships between environment, economy and society in the rural areas. Also, they analyse the natural resources and water management, biodiversity conservation and waste management in the adopted villages towards understanding the ecological systems.

Students generally feel motivated and develop a passion for these courses as they give hands on training. A faculty member observes that the campuses provide a wide scope for imbibing green culture. A student asserted that the Birthday Souvenir initiative made them more responsible.

Students organised rallies, formed human chains, and performed street plays and flash mob with a view to spreading environmental awareness. It included tree plantation, cleanliness drives, maintaining vermin-composting pits, constructing water-harvesting structures in the College and practicing paper recycling, etc. They also displayed banners to observe environmentally important days like World Ozone Day, World Forestry Day, World Water Day, World Environment Day, and Save House sparrow day.

Birthday Souvenirs

The **Green Management Programme** initiated **Birthday Souvenirs**, an initiative towards sustainability. Trees play a crucial role in purifying the air, reducing soil erosion and providing a habitat for wildlife. They also help combat climate change by absorbing carbon dioxide from the atmosphere.



Birthday Souvenir Initiative, Green Management Class, World House Sparrow Day & Nests Distribution TV News

The total number of students enrolled in the programmes will be around 2000. The total number of faculty involved in the programmes would be 30. Before the end of the year all students who participate in the programme will plant a sapling each. Indeed it is encouraging that the revenue fetched from sale of compost was about Rs. 1.5 lakh.



Since 1881

Tackling the Climate Crisis

The American College Madurai, India

Aware of the growing concern over the climate crisis and globalization the College has embarked on a programme of experiential learning to enable students to contribute to a sustainable future.

Continuous discussions at various levels in the College resulted in an open course under the extension activity called 'Green Management Program' for the academic year 2022-23. This aimed to provide an insight into the environment at its impact on human life and involved the participation of the public, private and corporate sectors. The course covered a range of environmental issues ranging from the greenhouse house, acid rain and ozone depletion to deforestation, desertification and biodiversity loss. The role of youth, communities and NGOs was also considered along with environmental ethics and laws. Students were offered opportunities for experiential learning wherever possible.

Suggested activities

Group discussions, debates, lectures, invited talks, symposiums, seminars, and conferences. Intra & inter departmental and intercollegiate competitions. Creating a 'No Plastics Zone' Campaigning on issues such as plastic bags, fireworks, traffichorns, recycling of glass and metal Rallies and marches to spread environmental awareness Tree planting and cleanliness drives Growing kitchen gardens and maintaining vermin composting pits Constructing water harvesting structures Displaying banner to celebrate environmentally important dayse.g., World Forestry Day Motivating students to imbibe the habits of minimum wastegeneration Segregating disposable and non-disposable waste Conducting a survey of campus trees, shrubs, medicinal plantsand wildlife

Activities undertaken

Indigenous Trees under the initiative 'Eden Garden' initiative at Satellite Campus Intercollegiate seminar Observation of No Plastic Day Survey of campus trees Adopting a tree under the initiative Happy Birthday Souvenir Bird watching on campus

267 students enrolled

6 Faculty members

1 Project coordinator

Find out more

www.americancollege.edu.in

Worldwide Teach-in on Climate and Justice

Center for Environmental Policy, Bard College, NY USA

<http://worldwideteachin.org>

The Worldwide Teach-in on Climate and Justice is a call for climate-concerned faculty and community leaders around the world to organize a climate Teach-in within their institution.

WORLD WIDE TEACH - IN CLIMATE JUSTICE



In 2023, the Worldwide Teach-in worked with a network of global educators to organize over 300 climate Teach-ins focused on helping students move from “**Climate Despair to Climate Repair.**” These Teach-ins included both all-campus events, where faculty members came together for inter-disciplinary panels to discuss the climate crisis from their unique disciplinary perspectives, to in-class discussions under the banner **#MakeClimateAClass**. Using the **#MakeClimateAClass** Teach-in model, climate-concerned educators took just 30 minutes out of their normal classes to talk about how their subject matter is contributing to climate solutions. The common thread that tied these diverse climate Teach-ins was the belief that **all students and educators** should be discussing climate justice, no matter their field of study.

310	~30,000~	265	50
Teach-ins Registered	Students Reached	Institutions Engaged	Countries with Registered Teach-ins

“Climate change seems overwhelming and inevitable. A natural reaction to this information is depression and disengagement, but that paralysis is itself the biggest threat to the future of the planet.” - Dr. Eban Goodstein (Co-Director and Founder of the Worldwide Teach-in)

The WorldWide Teach-in is a project of the [Graduate Programs in Sustainability at Bard College](#) in New York. The project has also received support from the [Open Society University Network](#), a global network of more than 30 educational institutions and institutions working in concert to promote civic engagement.



Carbon Literacy Training

Canterbury Christ Church University UK

Carbon Literacy Training is being delivered by the Academy for Sustainable Futures at Canterbury Christ Church to raise awareness amongst staff and students of climate related issues within and around the university.



This Carbon Literacy Training course was developed by Manchester Metropolitan University, UK in collaboration with the Carbon Literacy Trust. After completing the course himself, the Sustainability Projects Officer set about establishing it at Christ Church. It has now been run several times and is proving popular with staff and students, many of whom have completed the assessment and gained their certificate.

Despite a high level of interest, we recognise that the heavy workload of university staff and the fact that most students are both studying and working part-time is problematic. As a result, we have now started to offer some one hour 'taster' sessions as well as the whole day course. We have offered these as both free standing events and in seminars on validated teaching programmes. Some participants who wanted to learn more subsequently enrolled on the whole day course.

56 Staff and students attended carbon literacy training	30 Received carbon literacy certificate	150+ Attended a 'taster' session
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'People don't tend to care about environmental problems, but I believe I need to think about this problem.' Japanese exchange student

'It was a very good session, I learnt a lot and found it very interesting. Was delivered well and very interactive.' Events management student

Find out more

Carbon Literacy Project: <https://carbonliteracy.com/>

Academy for Sustainable Futures, Canterbury Christ Church University:

<https://www.canterbury.ac.uk/sustainability>

Social and Environmental Justice Conference

Canterbury Christ Church University, UK

Climate change does not affect people equally and not everyone is equally responsible for it. This interdisciplinary conference explored and celebrated social and environmental justice and its application to providing a sustainable future.



Senior lecturer, Zulfi Ali, discussing social justice issues at the conference.

(Photo Mirka Karaskova)

We invited colleagues, academics and students to help us explore areas of alignment between environmental and social justice, highlighting research and teaching strategies that work at the intersection of these themes and sustainability, promoting the development of inclusive learning environments. Throughout the day's events we celebrated the contributions that a diverse society makes to a sustainable future, aiming to promote representation of diverse voices in education that strives for social and environmental justice and to build a sense of belonging. We hope that collaborations fostered here will contribute to decolonising the curriculum and to enriching it with diverse narratives and discourses. The conference (October 2022) resulted from a collaboration between various groups and networks across Canterbury Christ Church University.

86 Participants in person and online	35 Delegates from different UK universities	24 Workshop presentations
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'Bringing staff, students and local community/residents together to discuss sustainability issues. Brilliant!' (Academic)

'I liked hearing different perspectives, and saw the connection between each point of view.' (Student)

Find out more

The complete [Follow Up Conference Programme](#) contains links to recorded talks, to presentation slides and to other resources shared by presenters.

Dragon! Public Art Sustainability Activism

Canterbury Christ Church University, UK

The climate emergency dragon in Becket Gardens at Canterbury Christ Church University is a fantastic ambassador for sustainable futures. The dragon was chosen as an easily accessible symbol for climate emergency, for what could be hotter, angrier, and more dangerous than a dragon?



The dragon takes shape July 2022

Photo: John Hills



Work finishes March 2023

Photo: John Hills



A baby dragon emerges Feb 2023

Photo: Pip Gregory

The Dragon (named 'Spiro' in a student competition) demonstrates sustainable futures through public art. The dragon represents the hottest and angriest creature in medieval bestiaries and what better way to raise awareness of today's current environmental emergency? Built by CCCU students, CCCU staff, Kent residents, our local scout group, and visitors, the dragon is made from recycled hard-core, covered in local clay and straw, topped with drought-resistant sedum and moss. Moss is an excellent form of carbon capture that makes the dragon's face naturally green and velvety and a figure for climate mitigation. Located on campus (formerly the site of a medieval monastery), it will serve as a teaching aid to improve the quality of our world and the need for a sustainable future. Due to its popularity, we are now building a 'baby' dragon; together these dragons form a sensory wellbeing space that celebrates our green heritage.

304

Participants at the Medieval Pageant Open Day

84

Students voting for the dragon's name

217

Views of the blog ['Here be Dragons'](#)

'What will be really memorable is the dragon!' (Visiting academic)

'Entertaining, stimulating and informative.' (Student) *'Great, a proper dragon'* (Visitor)

'An Outstanding contribution to sustainability' Prof Rama Thirunamachandran (Vice Chancellor)

Find out more

For details on dragon wrangling and green heritage see www.MedievalAnimals.org and #CCCUclimateDragon for a photographic essay, and [William Henniker's 3D Dragon scan](#)

A plastic-free soil for the growth of plants

Cuttington University, Liberia



Students and staff from the Department of Environmental Science, College of Natural Sciences went in the field and collected disposed plastic waste from the soil for the support of normal plant growth.

Cuttington University is a private Episcopal institution with four campuses, this institutional based project is being implemented at our undergraduate campus and its immediate environs, in Suakoko, Bong County, Liberia.

On average, in Liberia an individual drinks a minimum of four sachets of water a day. The empty plastic is dropped every and anywhere, and is eventually covered by soil as a result of erosion. The plastic waste stagnates the normal growth of plants. Consequently, carbon dioxide (CO₂) that would have been absorbed by the plant enters the atmosphere; contributing to climate change. To encourage healthy and normal growth of plants, this project was initiated. Students collect waste each semester, with the hope of continuing until the soil is plastic-free.

Our students state to the plants *“We are here to contribute to your growth”. “Grow well and absorb our CO₂”.* *“A climate conducive for all is our primary objective”.*



Photos: Students identifying and collecting plastics in group of two



Plastic waste collected from the soil



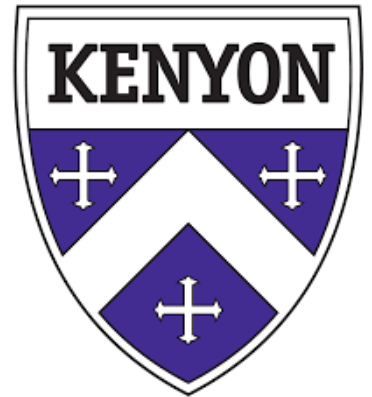
31 Students in Buye Workshop	25 Students in Sewanee Workshop	100,000 trees expected to be planted in 2 years
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Find out more

<http://cu.edu.lr>

Waste Reduction Goes Digital

Kenyon College, Ohio, USA



The KOGI app offers Kenyon college students and community members a “free-cycle” platform to share items that would otherwise be discarded (contributing to landfill waste and excess consumption). Through the Kenyon Office of Green Initiatives (KOGI) by empower individuals to contribute individually to the college’s larger-picture sustainability initiatives.



Until the fall of 2017, Harcourt Parish Episcopal Church hosted an annual Rummage Sale at which both Kenyon students and local residents could purchase items left behind when students vacated residence halls in the Spring. (The photo illustrates the scale of the waste previously managed by this sale.)

As the popularity of apartment-style residences began to overtake traditional-style dormitories, the scale of items brought to campus by students each year (and subsequently discarded) also expanded exponentially. Despite growing involvement by Kenyon’s offices of Residential Life and Green Initiatives, the Rummage Sale grew beyond the institutional capacity to support. Yet the problem of waste and over-consumption remained.

In the fall of 2022 this excess of waste, provided an outlet for Kenyon student Dennis Frimpong to use his background in product development. He has designed “KOGI Space” a free app “to be a first-to-go place for a give & take, creating points for students to realize their contribution to Kenyon’s Zero emission goal.” While the app is not yet launched on the Apple/Google play stores, it is “soft-launched” via web browsers. Upon launching at the end of the semester as an alternative to the former rummage sale, Frimpong hopes to see 250 individual exchanges and 1000 users.

<https://www.kenyon.edu/campus-life/sustainability-green-initiatives/>



Tree Planting Drive following Vardah Cyclone

Madras Christian College, India

MCC campus is known for its thick forest cover and also one of the rich floral and faunal diversity spots in Chennai region. Due to *Vardah* Cyclone on 12th December 2016, the campus lost over 600 exotic and few native trees including Copperpod, Rosy trumpets, Tamarind, Gulmohar, Teak, etc.



Rosy trumpet tree uprooted due to Vardah Cyclone

Prof. Edward Barnes Plantation Drive
- 9th October 2020-

NCC Cadets involved in planting tree
saplings 15th August 2017

Since then, the College has taken initiatives to increase the green cover by planting only native tree species and replacing the hedges of the campus with native shrubs and trees. Some of the common native plants include *Atalantia monophylla*, *Murraya paniculata*, *Streblus asper*, *Glycosmis mauritiana*, *Ixora parviflora*, *Suregada angustifolia* etc.

<p>2156 native tree saplings planted on campus between 2017 & 2022</p>	<p>19 departments Each planted a tree</p>	<p>6% organic matter Soil fertility has doubled in a decade</p>
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Find out more
www.mcc.edu.in



Waste Management Student Association (WAMSA)

Madras Christian College with its 365-acre campus has taken many initiatives to preserve its greenery for posterity. The solid waste management project originated at a creative thinking workshop in which social work students envisioned the college to be a zero-waste institution and was launched in January 2022.



Phase 1 Initiation

Studying existing waste management systems. College management approves changes. Mapping available sites for bins. Identifying collaborators.

Phase 2 Implementation

Training for students and staff. Setting up bins. Street

theatres to raise awareness. Provision of low-waste smoke incinerators

Phase 3 Extension

The project extended to staff and students' residencies on campus. The canteen and student lounge are monitored by volunteers. As a result of the project, plastic is now sent for recycling through effective segregation and disposal practices creating a circular economy. The project has the support of all the stakeholders namely the management, staff, campus workers, college union society, and students. A noticeable behavior change in segregation practices is observed in just one year among the stakeholders building civic sense and social responsibility. This project has also impacted climate change by reducing of emission of greenhouse gases from landfills (methane, NO₂ & CO₂), incinerators, and plastic bottles.

140

**Student
volunteers**

120

**bins on
campus**

6

**street
theatres**

848

**kg of
plastic**

6000+

**students
alerted**

Rs.11,931

INR raised

Find out more: Further details of social work at Madras Christian College and its commitment to service and holistic development can be found at

https://mcc.edu.in/social-worksfs/#dearflip-df_15129/1/

Our University's Climate Change Policy Based on our “Environmental Declaration”

Momoyama Gakuin University (St. Andrew's)



In 2000, our Momoyama Gakuin University established an "Environmental Declaration" to address environmental issues. Since then, we have taken both tangible and intangible action based on this declaration.

Momoyama Gakuin University has six faculties comprising five at the Izumi campus in the south of Osaka prefecture and Business design faculty within the St. Timothy's building in Osaka City. Our university has approximately 6,700 students. We established an "Environmental Declaration" in 2000 for the entire university to address environmental issues.

In the 2021, we were awarded the Osaka Climate Change Mitigation Award, and since 2017, we have been recognized as an outstanding energy-saving business operator in the Kansai region by the Ministry of Economy, Trade and Industry. This recognition was awarded for our efforts in the following areas: upgrading to high-efficiency equipment and introducing co-generation facilities for peak-cutting measures, implementing efficient air conditioning operation management to reduce energy usage, conducting an experiment involving student use of electric kick scooters and assisted bicycles between the nearest station and the university, and conducting awareness-raising activities including lectures and film screenings on environmental issues.



Electric kickboard used in the demonstration experiment

<p>kickboard scooters trialed</p>	<p>113 Students attended 2 film screenings</p>	<p>Kwh energy saved and Tonnes of CO2 saved</p>
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We will contribute to a sustainable society by achieving carbon neutrality on all campuses by 2030 (no later than 2040).

Find out more

Realized energy saving and power peak cut by introduction of cogeneration system and absorption chiller
https://www.panasonic.com/jp/hvac/cacbu/carbon-neutral/case/momoyamagakuin_univ.html

Educational corporation Momoyama Gakuin was the only educational corporation to receive the 2021 Osaka Climate Change Award
<https://www.andrew.ac.jp/gakuin/news/2022/j3o1hs000000md7.html>

Plymouth Marjon UK

Marjon Zero is an exciting visionary project to make our university one of the greenest in the country, doing as much as we can to protect the planet. We're committed to zero carbon by 2030.



Conservation is a hands on activity

Marjon Zero is an umbrella term which pulls together every aspect of sustainability on campus. Over the last two years, Marjon has installed Ground Source-Heat Pumps across campus in a ground-breaking project to become one of the first universities to do this, creating clean and renewable heating across our buildings and student accommodation. In collaboration with Devon Wildlife Trust we have conducted a full-scale Biodiversity Survey to audit the wildlife on campus which enabled the university to protect areas of wildflowers and meadows on campus from future development or landscaping. At the end of 2021, we installed our own beehives in association with Pollenize. We have sustainability embedded across undergraduate and postgraduate/research curricula, engaging students through both knowledge exchange and student-led change projects.

40

Jars of Marjon Honey

210

Saplings donated by The Woodland Trust planted

1st

University to install ground source heat pumps across campus

'We make every effort to decarbonise our energy, promote electric transport and protect the environment of our green campus that we share with rich flora and fauna, including wild orchids, bees and bats, foxes and deer. A green and decarbonised campus promotes wellbeing and makes stronger connections for our students and staff with the natural order. We want to be guardians not exploiters of the world we inhabit – before it's too late'. Professor Rob Warner, Vice-Chancellor.

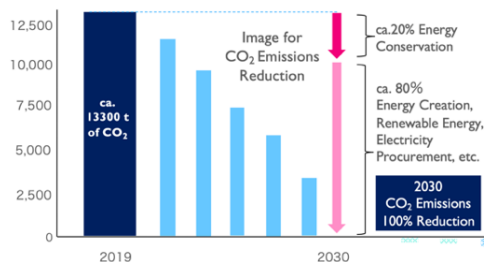
Find out more

Marjon Zero <https://www.marjon.ac.uk/about-marjon/marjon-zero/>

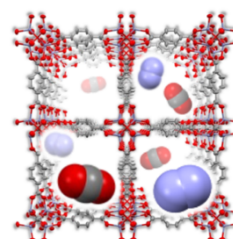
Our Initiatives towards “Carbon Neutrality Declaration”

Rikkyo University, Tokyo, Japan

Following the Japanese Government’s declaration “Achieving Carbon Neutrality by 2050”, Rikkyo University announced its own Carbon Neutrality Declaration outlining a roadmap for campus carbon neutrality, human resource development and leading research which promotes initiatives to tackle climate change, based on our mission “to seek universal and divine truth, for our world, society and neighbours.”



Rikkyo's Energy-saving Schedule for Reducing CO₂ Emissions



Molecular Structure of CO₂ Capture Materials Newly Created at the College of Science



The installation of this water server is one of the educational activities which aims to reduce the use of disposable plastic bottles, promote the use of "My Bottle" by Rikkyo University students, and foster awareness of SDGs and environmental issues.

Rikkyo’s Roadmap to Carbon Neutrality includes a suite of initiatives designed to reduce carbon emissions on campus, ranging from converting lighting to LEDs, renewal of air conditioning equipment, introducing energy management systems, promoting Zero Energy Building (ZEB) and introducing energy generation via solar panels and procuring renewable electricity and maintenance of Rikkyo’s forest

Our Carbon Neutral Human Resource Development roadmap will contribute to carbon neutral initiatives in society, in collaboration with residents and other stakeholders. As a member of the “Coalition of Universities and Colleges Contributing to Achieving Carbon Neutrality” established in 2021, we will utilize our tradition of liberal arts education and our strengths in local community collaboration, to educate students through enhance cross-faculty and specialized courses related to the SDGs, who have the ability to build a sustainable and carbon neutral society.

Finally, our "Carbon Neutral Frontier Research” roadmap will promote research dissemination and problem solving through social collaboration in the humanities and the college of Science to build our sustainable society.

Number of Students (2022) SDGs-related courses: 350 Environmental Fieldwork: 560 Service-Learning classes: 1070	Communities collaborated with Trinity University of Asia, Philippines
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Find out more

Rikkyo’s Sustainable Development Goals work showcased: <https://english.rikkyo.ac.jp/news/2020/dn4ddm00000024rj.html>
 Development of a novel porous material with selective CO₂ adsorption: <https://english.rikkyo.ac.jp/news/2020/dn4ddm000000290h.html>

Composting diverts food waste from landfill

The University of the South, Sewanee

The University of the South collects food waste from its dining hall and coffee shop and processes into compost, which is used on the University Farm on the western edge of campus. Compost improves soil fertility and enables the farm to produce food for dining operations.



Food waste pickup



Spreading food waste



Growing salad



Preparing squash

Food waste is combined with leaf litter from the wooded lawns of central campus. The finished compost is subsequently used in our gardens and greenhouses at the University Farm. In the last decade the organic matter in our soil has doubled. Students use regenerative agriculture techniques to produce salad crops in winter and field crops in the summer.

<p>10 Tonnes food waste diverted from landfill</p>	<p>15 tonnes of leaf litter reduces compost odour</p>	<p>6% organic matter Soil fertility has doubled in a decade</p>	<p>2 tonnes salad and produce sent to dining operations</p>
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"Composting with BSF larvae is so fast, how do they do that?" - student

"It was so cool that I was able to explain to the person behind me in the salad line that I harvested the lettuce we were about to put on our plate." - student.

Find out more

Information on the variety of composting techniques utilised on the University Farm, including larva assisted composting are detailed here

<https://new.sewanee.edu/features/chris-hornsby-c-19/>

A photo essay is available on Instagram @universityfarm

<https://www.instagram.com/universityfarm/>

Reforestation and Education in Burundi

The University of the South/Anglican Diocese of Buye, Burundi

A multifaceted project combined reforestation and community education efforts in Burundi with a climate change workshop offered at the School of Theology of the University of the South (Sewanee).



Photo: Simion Kinono

The Rev. Simion Kinono, graduate of the School of Theology of the University of the South (Sewanee), developed a community-education curriculum to accompany an ongoing reforestation project in the Anglican Diocese of Buye in Burundi. The University was able to contribute financial support and the expertise of Dr. Deborah McGrath (Professor of Biology) and Dr. Andrew Thompson (Assistant Professor of Ethics) to help Rev. Kinono develop and deliver the curriculum.

Following a successful workshop in Burundi on theology and the environmental responsibilities of the Church, Rev. Kinono joined Dr. Thompson to offer a follow-up workshop entitled “Churches on the Front Lines of Climate Change” at the School of Theology’s annual alumni lectures. The workshop used the Buye project to illustrate principles for Church-based climate change efforts based on the latest United Nations climate change data.

31 Students in Buye Workshop	25 Students in Sewanee Workshop	100,000 trees expected to be planted in 2 years
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“Most people think that people receive the Gospel only from the pulpit, but through the conversion of Emmanuel, they realized that actions done by the Church for the communities can attract people to salvation. Even though today the tree project has ended, people are still seeing the lands covered and they praise God for that.” – Jeanine Mutarutwa, Participant

Find out more

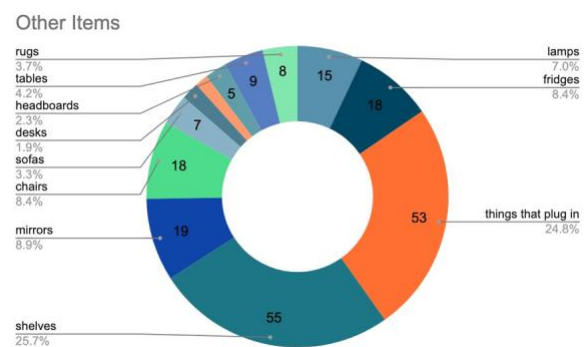
Center for Religion and Environment: <https://theology.sewanee.edu/cre/>
Burundi Project: <https://theology.sewanee.edu/media/features/alum-leads-environmental-protection-movement-in-burundi/>

Turning Trash to Treasure

The University of the South, United States of America

The University of the South’s (Sewanee’s) end of the semester waste diversion initiative gathers clothing, furniture, and appliances discarded during move out and creates a temporary thrift store for staff and community members.

Sewanee is a private liberal arts college and school of Theology with just under 2000 students. In 2017, prior to this initiative, more than 120 cubic yards of discarded clothing and housewares were disposed of every year at student move out.



The collected items are sorted and made available to the community for free reuse, during a “pre-sale” day for non-exempt staff. Any remaining items are available to everyone during a recommended 25¢ sale day. Remaining left over items are collected and delivered to two non-profits: the Grundy County Food Bank and the Veterans’ Emergency Services Thrift Store. Additionally, items were reserved for specific use by University offices (ex. International student support supplies), the local animal shelter (foam mattress for dog beds), and the hyper-local, but small, thrift store.

<p>12,540 gallons of items collected in 2022(excluding lamps, chairs and shelves)</p>	<p>\$375 raised from the sale day</p>	<p>2 + 6 non-profit organization partners and student workers</p>
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“We have seen a dramatic increase in need in this area. These donations make such a big difference in the lives of our families. Some of them have nothing, nothing at all, and these items help them start to build thEpeir lives.” – Mark, Veterans’ Emergency Services Thrift Store

Find out more

The Sustain Sewanee program serves as a hub for student and community engagement around climate action and environmental justice. To learn more about our activities and goals visit:

<https://new.sewanee.edu/offices/university-offices/environmental-stewardship-sustainability/sustain-sewanee/>

Combining science and the arts to act on climate change

University of Chester, UK

An interdisciplinary team from the University of Chester, partnering with a charity 'Storyhouse' hosted a day of performances, practical workshops, presentations and discussion panels to inspire our community to act to reduce their carbon footprint and protect the environment.



Undergraduates perform The Secret Garden

The University of Chester is city-centre based located across a number of sites in the north-west of England. Storyhouse, is one of the UK's foremost cultural charities, which incorporates a library, theatres and a cinema. Interdisciplinary research and public engagement are University priorities for engaging with climate change and sustainability.

Colleagues collaborated to organise a day focussed on inspiring action; inviting students, staff and community members to participate. Several members of the university's Sustainability and Environment Research and Knowledge Exchange Institute (SERKEI) presented their research. Topics included collaborative community designs for flood risk management to imagining the city without cars. A special adaptation of Frances Hodgson Burnett's *The Secret Garden*, was performed by university undergraduates. In addition, community members presented details of practical local initiatives, including rooftop gardens on multi-storey car parks and improving access to the city centre.

There was an excellent turnout with purposeful discussions and valuable connections.

400+ attendees including local schools	35 scheduled talks, workshops, performances	25 staff and students delivered sessions throughout the day
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"I liked the idea of finding out more about possible actions – particularly local to Chester – lots of variety of activities to choose from" Participant at the event

Find out more

University joins Storyhouse Climate Event <https://www1.chester.ac.uk/news/university-joins-storyhouse-climate-event?list=6800>

Storyhouse Climate <https://www.storyhouse.com/storyhouse-climate>

‘Let’s Talk Transport’ Group

University of Chester, UK



The Sustainability Team at the University of Chester launched the ‘Let’s Talk Transport’ group inviting staff and students across the institution to voice their opinions on travel provision at the University and across Chester.



Members of the Let's Talk Transport group discuss accessibility

The Let’s Talk Transport group provides staff and students with the opportunity to contribute to the development of the University’s Travel Plan. The Sustainability Team want to understand the opportunities and challenges associated with different forms of travel, for commuting and business travel and how to support the transition to sustainable options.

Monthly meetings focus on different themes, including, accessibility of sustainable travel; reasons for car use and barriers to using public transport. The insights from the group contribute to the development and implementation of the 2022 – 2030 Travel Plan. Attendees learn about how the University is actively working to improve its sustainable travel infrastructure, including our engagement with Cheshire West and Chester Council to realise our mutual commitment to achieving Net Zero and reducing transport emissions. In addition, members from local interest groups are invited to present on the practicalities and additional support available in transitioning to travel via sustainable transport modes.

7 regular student members	33 staff members	4 external partners
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“These discussions and valuable insight provide our team with a clearer understanding of the opportunities and challenges associated with switching to more sustainable transport.” Jade Cox, Graduate Transport Strategy Officer.

Find Out More

Travel and Transport <https://www1.chester.ac.uk/sustainability/about/travel-and-transport>

University launches Let’s Talk Transport group to bolster sustainability

<https://www1.chester.ac.uk/news/university-launches-let%E2%80%99s-talk-transport-bolster-sustainability?list=6800>

TIDING OVER THE CLIMATE CRISIS: INITIATIVES AT WOMEN'S CHRISTIAN COLLEGE, CHENNAI

* Sherrie Jesulyn David & ** Lilian I Jasper

* Department of Plant Biology & Plant Biotechnology, Women's Christian College, Chennai, India

** Department of English, Women's Christian College, Chennai, India

To address the climate crisis, achievable solutions have to be undertaken at individual, institutional and global levels creating resilient ways to mitigate and adapt to climate change. Women's Christian College (WCC), Chennai has always been an exemplary model of a community that believes in being responsible for and conscious of its environment. The green campus concept is aimed at enabling the college to redefine its environmental culture and developing new paradigms by creating sustainable solutions to the environmental, social and economic needs of mankind.

As an Institution that believes in the motto 'Lighted to Lighten', at an institutional level, WCC has adopted climate friendly initiatives through the past decade to make its mark on the community and the environment by playing the role of a corporate body that is conscious of adopting cost effective methods of meeting requirements wherever possible. This report highlights a few of these initiatives.

I. ENVIRONMENTAL STEWARDSHIP

• Enhancing Arboreal diversity on campus

WCC displays an astonishing diversity of trees that maintains carbon dioxide neutrality. Tree planting is an on-going process on campus to enhance greenery. Campus trees are tagged with QR-code tree boards in an effort to foster an awareness of conserving trees.

• Butterfly Garden to increase Pollinator Diversity

The butterfly garden project was envisioned as a means of drawing attention to butterflies that function as pollinators and are important indicators of the biodiversity of a given area and also in the sustainable production of food.

• Community Garden & Mushroom Cultivation

With the aim of encouraging organic gardening as well as highlighting the importance of healthy and sustainable food production and consumption habits among students in an urban set up.

• Herbal Garden & Orchard

To sensitize the students about the effects of climate change on medicinal plants and fruit trees, and to instill an interest in conservation, particularly in communities where traditional system of medicine is accepted.

• Reducing Emissions

Energy Efficient Lighting Systems, Energy Efficient BLDC Fans, and Energy Efficient Air Conditioning System (VRV) are used in newly constructed buildings and replaced in older ones. Solar energy is harvested through solar panels installed.

• Water conservation Measures

The rainwater run-off collection system is well in place. The roof water and storm water is allowed to percolate into open wells. Over thirty percolation pits have been laid to enhance ground water recharge.

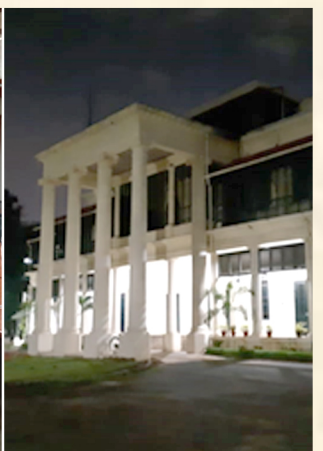
II. WASTE MANAGEMENT PRACTICES

- Recycling a part of solid waste generated in the form of vermicomposting and mulching
- Use of single use plastic bottles to construct benches
- Practise of Upcycling

The use of salvaged timber from fallen trees and steel from renovated buildings on campus have been used to furnish the academic/ residential/ administrative blocks.

Besides, it is a practice that is restorative and regenerative and can lead to the fostering of an environment conscious community that works towards sustainability and development in a disturbing global scenario where wasting resources has become a reality, and reversing the effects of global warming, climate change, deforestation, etc. has become important and indispensable. Wood from fallen Rain Trees on campus were used to make student chairs with writing pads, chairs and tables for teachers, platforms in classrooms, wooden almirahs, teapoy to name a few.

MS (Mild Steel) flats recovered from the Science Block ceiling have been used for making grills in the hostel and the framework required for the Shade House. This practise has led to the fostering of an environment conscious community that works towards sustainability and development in a disturbing global scenario where wasting resources has become a reality.



Living Faithfully and Wholistically in the World

At the heart of Anglican identity are the Five Marks of Mission, which express the Anglican understanding of what it means to live faithfully and holistically in the world. They reflect Jesus' mission to bring good news to the poor, release for the oppressed and fullness of life to all (Luke 4:18; John 10:10) and humanity's role to "tend and keep" the earth (Genesis 2:15).

The Anglican Five Marks of Mission are:

- **To proclaim the Good News of the Kingdom**
- **To teach, baptise and nurture new believers**
- **To respond to human need by loving service**
- **To transform unjust structures of society, to challenge violence of every kind and pursue peace and reconciliation**
- **To strive to safeguard the integrity of creation, and sustain and renew the life of the earth**

Never has the Fifth Mark of Mission been more important. We are in a climate and ecological crisis. Climate change is severely impacting millions of people across the world and wreaking havoc on the biodiversity of our common home, threatening the integrity of creation.

In the face of climate change, biodiversity loss, profound human suffering and social inequality, we need to act urgently and with ambition.

The case studies in this report offer practical examples of what responses might look like. They show what is possible with imagination and determination.

It has been my privilege to join several of the meetings of the Climate Crisis Working Group of CUAC over the last several months, connecting the group with the wider environmental work happening across the Anglican Communion. These meetings have been a source of encouragement and joy for me. Why? Because of the stories and examples of action I have heard, case studies which are now captured in this report and available for many more to hear about. But also because of the people in the group, the people behind many of these stories. Here is a group of highly intelligent, passionate people who are working to make a difference in their diverse contexts.

In many ways, the case studies in this report and the people behind them are a microcosm of the Anglican Communion, the world's third largest Christian community with 85 million members across 165 countries.

As a global, connected body with a shared identity that transcends national borders, the Anglican Communion has a distinctive perspective on climate change. Member churches of the Anglican Communion are involved in every part of the environmental emergency. We are the people facing devastation in disaster-stricken communities. We are the polluters, especially in wealthy countries. We are people living in poverty and on the margins. We wield power and political influence. We are experiencing loss and damage of our land, homes and livelihoods. We are investors with financial capital. We are first-responders to disasters and those who accompany communities on the journey of recovery and resilience. We contribute to the problem. We contribute to the solution. We are both local and global. We connect with one another, share our experiences and can leverage our networks and Anglican identity to mobilise for action. We do not speak from just one position but from many. We do not only speak to others; we speak also to ourselves.

So where next?

YOU ARE PART OF SOMETHING BIGGER
As a college or university of the Anglican Communion, you are part of a worldwide family. Individual actions may feel insufficient, but together they add up. There are many others taking action to safeguard creation and sustain and renew the life of the earth in every part of the Anglican Communion.

First, I urge people to read the case studies and be inspired. Take time to reflect and dream dreams. What might the next step be for your institution? Find allies. Be imaginative. Be ambitious!

The case studies in this report show different types of activity. Some is about embedding the climate crisis in the formal curriculum, in courses and modules; some is about embedding it in the informal curriculum, through clubs and activities; and some is about embedding it in the subliminal curriculum, in the good practice adopted by the institutions, making it normative for students. This three-fold approach is a helpful framework for mainstreaming climate action in institutions. What more can your institution do in each of these areas?

Second, be encouraged that you are part of something bigger. As a college or university of the Anglican Communion, you are part of a worldwide family. Individual actions may feel insufficient, but together they add up. There are many others taking action to safeguard creation and sustain and renew the life of the earth in every part of the Anglican Communion. You can find examples and encouragement on the Anglican Alliance's Climate Emergency hub, on the Anglican Communion Environmental Network website and on the Communion Forest website.

In 2022, the fifteenth Lambeth Conference took place - a once-in-a-decade gathering of bishops from across the Anglican Communion for prayer and reflection, fellowship and dialogue on church and world affairs. A series of 'calls' was issued by the bishops, including one on the environment and sustainable development. I encourage people to read the call (on page 7) in its entirety, as it offers both insight into the current 'mind of the Communion' on the environmental crisis and specific calls to action.

So, finally, I share those calls directed to 'ourselves as bishops and the people of our provinces, dioceses and parishes', and by extension to Anglican institutions, in the hope they provide further inspiration for next steps:

4.1.1 Treasure God's marvellous creation, recognising the profound interdependence of all life on earth and repenting of actions and theologies of domination, which have caused great harm to the earth and injustices to its people.

4.1.2 Recognise the triple environmental crisis as a crisis of cultural and spiritual values and build on the reach and influence of the Church to challenge ourselves and humanity to transform our mindset away from exploitation of the natural world to one of relationship and stewardship, as embodied by the wisdom of the Christian tradition and by Indigenous peoples.

4.1.3 Integrate the Fifth Mark of Mission into the life of our churches by: bringing this Call to our diocesan and parish structures; teaching our people about issues of the environment; embracing creation liturgies, and responding in prayer and lament such as during the Season of Creation; raising up the prophetic voices of young people and women who are calling for climate justice; and forming partnerships of solidarity with dioceses on the frontline of climate change.

4.1.4 Equip communities to build resilience to help them withstand and recover from disasters, and promote the prophetic voice of young people and the key role of women as earth protectors, recognising that climate change impacts unequally on women and future generations.

4.1.5 Join in the Communion Forest initiative, to protect and restore forests and other ecosystems across our planet and commit to promoting tree growing at the time of confirmation, and other key life and faith moments, as a symbol of spiritual growth.

4.1.6 Ensure we use and invest our assets ethically to be good news for our planet and people and, as a matter of urgency, remove our funds from any new fossil fuel exploration, and seek to invest in renewable energy sources.

4.1.7 Acknowledge the impact of our lifestyles and commit to changes in the way we live, reducing our travel, consumption and energy use.

Problem statements: Dr Paul Wilson, Principal of Madras Christian College in Chennai, developed this approach for analyzing the different ways which that campus can be used to explore climate change issues (and develop possible solutions) could be encapsulated in country specific problem statements. These are liable to be fairly general in nature and could be posted on the CUAC website to enable students and staff from different institutions to share ideas about how they might be addressed. This approach has the potential to be a dynamic device which will engage students in a collaborative manner and raise the profile of climate change in a positive way.

Carbon Emission Resource of the Campus	Background/Status	Probable Pointers for solution	Illustrative problem statements	Possible campus based initiatives
Diesel Powered Electricity Generators	<p>The CO2 emission of a diesel generator is between 2.4-2.8 kg CO2/L depending on the characteristics of both the engine and the fuel [5]. The average specific fuel consumption of a diesel generator is 0.33 L/kWh, so the CO2 emission generated by a diesel generator is estimated to be 0.8-0.93 kg CO2/kWh.</p>	<p>diesel generators emit 159 Metric Tons of CO2 annually to produce 200 Megawatts-hours of energy. If, instead, this energy was sourced from the grid, only 74 Metric Tons of CO2 would have been emitted.</p>	<p>Ideations for Innovative and alternative energy source to minimise/eliminate the usage of Fossil fuel-based generators</p> <p>Localized solar powered energy sources for specific purposes, mobile solar powered energy sources</p> <p>Grid powered ploughing machine ideas for the FARM</p>	

Carbon Emission Resource of the Campus	Background/Status	Probable Pointers for solution	Illustrative problem statements	Possible campus based initiatives
<p>Land use and Forestry</p>	<p>Roughly 30% of the world's greenhouse gas emissions come from land use</p>	<p>Integrated Landscape Management ideas would have a systemic thinking</p> <p>Forest Conservation Projects could also mitigate</p>	<p>Ideations for Dry leaf Composting" by sourcing it from the littered leaves as nutrient for agriculture in the campus.</p> <p>Ideations for Developmental plans that are carbon neutral concerning land utilization needed.</p> <p>Ideations for Networking all the activities of the campus through a digital management system for assessing carbon footprint to make informed decisions</p>	

Carbon Emission Resource of the Campus	Background/Status	Probable Pointers for solution	Illustrative problem statements	Possible campus based initiatives
<p>Construction of carbon neutral buildings</p>	<p>The built environment generates nearly 50% of annual global CO2 emissions. Of those total emissions, building operations are responsible for 27% annually, while building materials and construction (typically referred to as embodied carbon) are responsible for an additional 20% annually.</p>	<p>Biophilic design, incorporating aspects such as natural lighting and ventilation, natural landscape features and other elements for creating a more productive and healthy built environment for people</p> <p>Climate resilient designs for mitigating temperature, cold and flood can serve as pointers</p>	<p>Statement: Infrastructural development at the cost of green cover of the campus and the call to avoid deforestation through cutting of trees</p> <p>decarbonization ideas for the operations solicited</p> <p>Effective optimization approaches or ideas for reducing greenhouse gas emissions from planning, construction, operation and management of the real estate needed</p> <p>A thoroughly debated draft on Institutional carbon offset standards for infrastructural developments in the campus needed.</p>	

Carbon Emission Resource of the Campus	Background/Status	Probable Pointers for solution	Illustrative problem statements	Possible campus based initiatives
<p>Food</p>	<p>About a third of all human-caused greenhouse gas emissions is linked to food. This means that the contribution of food wastage emissions to global warming is almost equivalent (87%) to global road transport emissions</p>	<p>Green processing and delivering of food from “Farm to Fork Model”</p> <p>Food processed, transported, distributed, prepared, consumed, and sometimes disposed to have low carbon intensive protocols</p> <p>Campus to come up with food innovation hackathon to curate ideas for climate smart food.</p>	<p>Ideations for “Climate Smart Cafeteria” serving only Climate Smart Food which is Ethno-specific, economically viable, low carbon emitting, nutritious, marketable, having high demand by consumers - Ideation required</p> <p>Every campus has wastage of food from cafeteria, events conducted, residential areas. How can we convert, minimize, avoid, conserve the food through smart processes?</p>	

Climate Smart Institutional policies

Development of an integrated carbon footprint calculator acceptable globally has not been successful so far.

Some of the Policies on voluntary carbon offsetting for passengers in Air travel has not been successful. A proper study on the failure would help drafting policies.

voluntary carbon offsetting measures.

"Study Carbon Neutral" scheme for students to be designed

Incentive based Innovative ideas for policy that appeals to students, and is sustainable monetarily, in addition to its easy adoptability

Recognizing faculty securing minimum carbon footprints through a monitored management system with **rewards**

Project based learning (PBL) on climate change as part of Curriculum leading to **empathetic personality traits among students as** a tangible outcome

Awarding Units/Departments who promote plantation drives for increasing green cover of the campus

Innovative and appealing Incentivization for students through drafting **Carbon offset policies** for the College:

Problem statement:

- a) Students engagement to such commitments -A challenge
- b) Socio-economic status of students forcing them to seek jobs for paying their fee and hence they do not offer priority towards environment

Country and College specific Policies for Carbon Financing ideas: Waiving tuition fee, Fee Concession, carbon credits (academic & financial) to facilitate carbon neutral institution.

Incentivization guidelines needed with authentic *Key performance indicators* as part of the policy featuring

Minimization through conservation (Renew, Recycle and Reuse) as philosophies, Usage of public transports, renewable energy, using less energy intensive gadgets by the stakeholders etc

<p>6. Waste disposal in the campus</p>	<p>Each ton of Municipal Sewage Waste incinerated typically releases between 0.7 and 1.7 tons of CO2</p>	<p>Are there ways to create an administration system (Purchase department) with restraint for carbon sources at the procurement level?</p> <p>Can we simulate a synthetic crisis for a designated period and observe the same as “carbon neutral month” in the institution as part of the institution calendar provoking empathy among stake holders?</p> <p>Can we reckon students as man power and redeem their creative ideas to be used in disposal through designing “Carbon neutral service learning programme” of the institution towards an innovative Waste disposal proposal and integrate “waste management” as an integral part of their curriculum to instill the attitude as habit?</p> <p>Can we integrate carbon offset fee collection as part of the admission fee and enable them to redeem the same once they establish themselves to be carbon neutral? One which is not redeemed would be spent for creating carbon neutral campus.</p>	<p>Primary constraint for establishing waste disposal in the institution is its cost towards infrastructure, manpower and transport. Need an innovative process that is easily executable.</p> <p>Institutional waste disposal policy that is pragmatic and executable to be drafted</p> <p>We need to Design economically viable indigenous gadgets or formulating protocols and processes and the same to be credited to academics in lieu of few credits.</p>	
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Energy consumption
Water treatment

Wastewater treatment plants are the source of greenhouse gas emission, i.e.: carbon dioxide (CO₂), nitrous oxide (N₂O) and methane (CH₄) which result from biological processes occurring in wastewater
Wastewater treatment plants (WWTP) consume large amounts of energy, estimated at **between 1% and 3% of global energy output**. State-of-the-art facilities consume 20-45 kWh per population equivalent (PE) connected.
The energy needed to move, treat, and use water in the US for both residential and commercial purposes produces nearly **290 million metric tonnes of CO₂ annually** – the equivalent of 5% of the nation's overall carbon emissions

Can we install or convert the existing treatment plants to the solar powered water treatment plant to conserve energy?

Problem Statement: Conservation of Water consumes energy through the sewage treatment plant in the campus. Process or Design Optimization ideas to mitigate

Carbon Emission Resource of the Campus	Background/Status	Probable Pointers for solution	Illustrative problem statements	Possible campus based initiatives
Campus Transportation	<p>Carbon intensive processes from the industry such as Transportation causes 27 % green house gases and Electricity production emits 25 % green house gases.</p>	<p>Encouraging Bicycle users in the academic campus Grid driven vehicles (Solar powered) Campus residents use cars.</p>	<p>Formation of bicycle users club with incentivization ideas solicited Huge academic campus integrates residential area and four wheelers are owned by the residents. How to mitigate the implications of 4-wheeler usage?</p>	

Carbon Emission Resource of the Campus	Background/Status	Probable Pointers for solution	Illustrative problem statements	Possible campus based initiatives
<p>Academic and Research laboratories:</p>	<p>Research carried out in the earlier dispensation had reductionism as philosophy leading to the development of technologies and chemical processes without systemic thinking. As a consequence, the environmental concern was not integrated as part of inventions.</p>	<p>Laboratories of the institution to integrate into the curriculum the Green protocols as part of the sustainable development goals.</p> <p>Investment for waste disposals to be considered not as expenditure</p> <p>A system thinking approach to use the problem-solving processes (designing green protocols) for capacity building of faculty and students to be contemplated.</p> <p>Minimum waste production and converting waste to wealth to be reckoned as a mandatory process to be adhered with. A curriculum integrated approach would be constructive in its essence.</p>	<p>Change management from the conventional scientific processes is a challenge for the faculty members.</p> <p>Intervention strategies needed for creating empathy among students towards stewardship and environmental concern and construct problem statements on their own for establishing carbon neutral science education</p> <p>Intervention strategies to curate in-house solutions (Design, process and Product innovations) for the waste disposal, waste minimization and zero waste processes to be compiled with in the laboratories from the stake holders (faculty, students) through the academic programs solicited</p>	

Carbon Emission Resource of the Campus	Background/Status	Probable Pointers for solution	Illustrative problem statements	Possible campus based initiatives
<p>Designing of Carbon neutral Events:</p>	<p>Events organized in the campus demands energy consumption, uses carbon emitting gadgets, food wastage, transportation etc together adding to the carbon footprint.</p>	<p>Sustainable materials, minimum transportation, less energy intensive events, solar power lighting, redeeming day light, less printed materials, using QR code, vegetarian food, Greener transportation, Designing of green events would help mitigating the emission.</p>	<p>Challenge is to create a culture of carbon neutral ecosystem and conditioning the stakeholders to comply with the new normal</p> <p>Graded and equilibrated intervention strategies as process innovations solicited to realise the suggested pointers</p> <p>Intervention strategies include Awareness strategies through digital handles, strategy to create a need for complying with, facilitating the carbon neutral culture to emerge as a status among the stakeholders or new civilization</p> <p>For the stakeholders.</p>	